

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Presently Amended) A method for retaining error-control code protection across
2 block-size discontinuities occurring between incoming information, having
3 incoming data formatted into ingress data blocks and ingress headers, one
4 ingress header associated with each ingress data block and conveying
5 information about the each ingress data block, and outgoing information having
6 the incoming data reformatted into egress data blocks with sizes different from
7 the ingress data blocks and egress headers, one egress header associated with
8 each egress data ~~block~~ block and conveying information about the each egress
9 data block, the method comprising:
 - 10 (a) generating a code check from data in an ingress data block and from an
11 ingress header associated with the ingress data block;
 - 12 (b) generating a code check from the code check generated in step (a) and
13 an egress header associated with an egress data block derived from ~~in~~ the
14 ingress data block; and
 - 15 (c) generating the outgoing information by combining the egress header with
16 the associated egress data block and code check generated in step (b).
- 1 2. (Presently amended) The method of claim 1 wherein step (b) comprises:
 - 2 (b1) generating a code check from the egress header;
 - 3 (b2) generating a code check by subtracting a portion of the code check
4 generated from the associated ingress header in step (a) from the code
5 check generated in step (b1); and
 - 6 (b3) adding the code check generated in step (a) to the code check generated
7 in step (b2).

- 1 3. (Original) The method of claim 2 wherein step (b2) comprises adding the inverse
2 of the portion of the code check generated from the ingress header in step (a) to
3 the code check generated in step (b1).
- 1 4. (Original) The method of claim 1 wherein step (a) further comprises:
2 (a1) modifying the code check generated from data in the ingress data block
3 and the associated ingress header to compensate for non-data bits added
4 to the ingress data block.
- 1 5. (Presently Amended) The method of claim 4 wherein step (a1) comprises
2 rotating bits in the code check generated from data in the ingress data block and
3 associated ingress header to compensate for non-data bits added to the ingress
4 data block.
- 1 6. (Original) The method of claim 1 wherein step (a) further comprises:
2 (a2) modifying the incoming information to compensate for non-data bits added
3 to the ingress data block.
- 1 7. (Original) The method of claim 1 wherein step (c) comprises concatenating the
2 egress header with the associated egress data block and the code check
3 generated in step (b).
- 1 8. (Presently Amended) The method of claim 1 wherein step (a) comprises
2 generating the code check as a one's-complement sum of successive *n*-bit
3 binary words included in the ingress data block and the associated ingress
4 header.

- 1 9. (Presently Amended) The method of claim 1 wherein step (b) comprises
2 generating the check code as a one's-complement sum of successive n -bit
3 binary words included in the egress header.
- 1 10. (Presently Amended) The method of claim 1 wherein step (a) comprises
2 generating the check code as a term-by-term modulo-two sum of successive n -
3 bit binary words included in the ingress data block and the associated ingress
4 header.
- 1 11. (Presently Amended) The method of claim 1 wherein step (b) comprises
2 generating the code check as a term-by-term modulo-two sum of successive n -
3 bit binary words included in the egress header.
- 1 12. (Presently Amended) The method of claim 1 wherein step (a) comprises
2 generating the code check as the residue of the ingress data block and the
3 associated ingress header modulo a generator polynomial.
- 1 13. (Presently Amended) The method of claim 1 wherein step (b) comprises
2 generating the code check as the residue of the egress data block modulo a
3 generator polynomial.
- 1 14. (Original) The method of claim 1 wherein the incoming information includes an
2 incoming code check associated with each ingress data block and step (a)
3 further comprises comparing the ingress code check to the incoming code check
4 and generating an error when the ingress code check does not equal the
5 incoming code check.
- 1 15. (Presently Amended) Apparatus for retaining error-control code protection across
2 block-size discontinuities occurring between incoming information, having
3 incoming data formatted into ingress data blocks and ingress headers, one
4 ingress header associated with each ingress data block and conveying

5 information about the each ingress data block, and outgoing information having
6 the incoming data reformatted into egress data blocks with sizes different from
7 the ingress data blocks and egress headers, one egress header associated with
8 each egress data ~~block~~ block and conveying information about the each egress
9 data block, the apparatus comprising:

10 an ingress encoder that generates an ingress code check from data in an
11 ingress data block and from an ingress header associated with the ingress data
12 block;

13 an egress encoder that generates a egress code check from an egress
14 header associated with an egress data block derived from ~~in~~ the ingress data
15 block and from the ingress code check; and

16 a multiplexer that generates the outgoing information by combining the
17 egress header with the associated egress data block and the egress code check.

1 16. (Presently Amended) The apparatus of claim 15 wherein the egress encoder
2 comprises:

3 an outgoing encoder that generates an egress code check from the
4 egress header and from ~~internal~~ intermediate contents of the outgoing encoder;

5 a controller that subtracts a portion of the ingress code check generated
6 from the associated ingress header from the outgoing encoder intermediate
7 contents and adds the ingress code check to the outgoing encoder intermediate
8 contents.

1 17. (Original) The apparatus of claim 16 wherein the controller further comprises a
2 mechanism that modifies the ingress code check to compensate for non-data bits
3 added to the ingress data block.

1 18. (Presently Amended) The apparatus of claim 16 wherein the controller comprises
2 a mechanism that rotates the bits of the ingress code check to compensate for
3 non-data bits added to the ingress data block.

- 1 19. (Original) The apparatus of claim 16 wherein the controller adds the inverse of
2 the portion of the code check generated from the ingress header by the ingress
3 encoder to the outgoing encoder contents.
- 1 20. (Original) The apparatus of claim 15 further comprising a mechanism that
2 modifies the incoming information to compensate for non-data bits added to the
3 ingress data block.
- 1 21. (Original) The apparatus of claim 15 wherein the multiplexer comprises a
2 mechanism that concatenates the egress header with then associated egress
3 data block and the egress code check.
- 1 22. (Original) The apparatus of claim 15 wherein the ingress encoder comprises a
2 one's-complement encoder that generates a one's-complement sum of
3 successive n -bit binary words included in the ingress data block and the
4 associated ingress header.
- 1 23. (Original) The apparatus of claim 15 wherein the outgoing encoder comprises a
2 one's-complement encoder that generates a one's-complement sum of
3 successive n -bit binary words included in the egress header.
- 1 24. (Original) The apparatus of claim 15 wherein the ingress encoder comprises a
2 vertical-parity-check encoder that generates a term-by-term modulo-two sum of
3 successive n -bit binary words included in the ingress data block and the
4 associated ingress header.
- 1 25. (Original) The apparatus of claim 15 wherein the outgoing encoder comprises a
2 vertical-parity-check encoder that generates a term-by-term modulo-two sum of
3 successive n -bit binary words included in the egress header.

- 1 26. (Original) The apparatus of claim 15 wherein the ingress encoder comprises a
2 cyclic-residue-code encoder that generates the residue of the ingress data block
3 and the associated ingress header modulo a generator polynomial.
- 1 27. (Original) The apparatus of claim 15 wherein the outgoing encoder comprises a
2 vertical-parity-check encoder that generates the residue of the egress data block
3 modulo a generator polynomial.
- 1 28. (Original) The apparatus of claim 15 wherein the incoming information includes
2 an incoming code check associated with each ingress data block and the
3 apparatus further comprises a comparator for comparing the ingress code check
4 to the incoming code check and generating an error when the ingress code
5 check does not equal the incoming code check.
- 1 29. (Presently Amended) A computer program product for retaining error-control
2 code protection across block-size discontinuities occurring between incoming
3 information, having incoming data formatted into ingress data blocks and ingress
4 headers, one ingress header associated with each ingress data block and
5 conveying information about the each ingress data block, and outgoing
6 information having the incoming data reformatted into egress data blocks with
7 sizes different from the ingress data blocks and egress headers, one egress
8 header associated with each egress data ~~block~~ block and conveying information
9 about the each egress data block, the computer program product comprising a
10 computer usable medium having computer readable program code thereon,
11 including:
12 program code that generates an ingress code check from data in an
13 ingress data block and from an ingress header associated with the ingress data
14 block;

15 program code that generates a egress code check from the ingress code
16 check and an egress header associated with an egress data block derived from
17 ~~in~~ the ingress data block; and
18 program code that generates the outgoing information by combining the
19 egress header with the associated egress data block and the egress code check.

1 30. (Presently Amended) The computer program product of claim 29 wherein the
2 program code that generates a an egress code check comprises:
3 program code that generates an egress code check from the egress
4 header;
5 program code that subtracts a portion of the ingress code check
6 generated from the associated ingress header from the egress code check; and
7 program code that adds the ingress code check to the egress code check.

1 31. (Original) The computer program product of claim 30 wherein the program code
2 that subtracts a portion of the ingress code check from the egress code check
3 comprises program code that adds the inverse of the portion of the ingress code
4 check to the egress code check generated.

1 32. (Original) The computer program product of claim 29 wherein the program code
2 that generates an ingress code check further comprises program code that
3 modifies the ingress code check to compensate for non-data bits added to the
4 ingress data block.

1 33. (Presently Amended) The computer program product of claim 32 wherein the
2 program code that modifies the ingress code check comprises program code that
3 rotates the bits of the ingress code check to compensate for non-data bits added
4 to the ingress data block.

- 1 34. (Original) The computer program product of claim 29 wherein the program code
2 that computes the ingress code check further comprises program code that
3 modifies the incoming information to compensate for non-data bits added to the
4 ingress data block.
- 1 35. (Original) The computer program product of claim 29 wherein the program code
2 that generates the outgoing information comprises program code that
3 concatenates the egress header with the associated egress data block and the
4 egress code check.
- 1 36. (Original) The computer program product of claim 29 wherein the program code
2 that generates the ingress code check comprises program code that generates a
3 one's-complement sum of successive n -bit binary words included in the ingress
4 data block and the associated ingress header.
- 1 37. (Original) The computer program product of claim 29 wherein the program code
2 that generates the egress code check comprises program code that generates a
3 one's-complement sum of successive n -bit binary words included in the egress
4 header.
- 1 38. (Original) The computer program product of claim 29 wherein the program code
2 that generates the ingress code check comprises program code that generates a
3 term-by-term modulo-two sum of successive n -bit binary words included in the
4 ingress data block and the associated ingress header.
- 1 39. (Original) The computer program product of claim 29 wherein the program code
2 that generates the egress code check comprises program code that generates a
3 term-by-term modulo-two sum of successive n -bit binary words included in the
4 egress header.

- 1 40. (Original) The computer program product of claim 29 wherein the program code
2 that generates the ingress code check comprises program code that generates
3 the residue of the ingress data block and the associated ingress header modulo
4 a generator polynomial.
- 1 41. (Original) The computer program product of claim 29 wherein the program code
2 that generates the egress code check comprises program code that generates
3 the residue of the egress data block modulo a generator polynomial.
- 1 42. (Original) The computer program product of claim 29 wherein the incoming
2 information includes an incoming code check associated with each ingress data
3 block and wherein the program code that generates the ingress code check
4 further comprises program code that compares the ingress code check to the
5 incoming code check and generates an error when the ingress code check does
6 not equal the incoming code check.
- 1 43. (Presently Amended) A computer data signal embodied in a carrier wave for
2 retaining error-control code protection across block-size discontinuities occurring
3 between incoming information, having incoming data formatted into ingress data
4 blocks and ingress headers, one ingress header associated with each ingress
5 data block and conveying information about the each ingress data block, and
6 outgoing information having the incoming data reformatted into egress data
7 blocks with sizes different from the ingress data blocks and egress headers, one
8 egress header associated with each egress data ~~beek~~ block and conveying
9 information about the each egress data block, the computer data signal
10 comprising:
11 program code that generates an ingress code check from data in an
12 ingress data block and from an ingress header associated with the ingress data
13 block;

14 program code that generates a egress code check from the ingress code
15 check and an egress header associated with an egress data block derived from
16 in the ingress data block; and
17 program code that generates the outgoing information by combining the
18 egress header with the associated egress data block and the egress code check.